# TRANSFORMING MOBILITY ACROSS IOWA

July 2018

IOWA DOT
GETTING YOU THERE

INTERSTATE 80 PLANNING AND ENVIRONMENTAL LINKAGES (PEL) STUDY

Mobility can be thought of as the ability and ease of travel. In the future, Automated Vehicle (AV) technologies will make transportation more convenient for all Iowans. Ease of travel will also be greatly enhanced, thereby changing our travel patterns. Travel volumes are expected to increase and with advanced technologies, tomorrow's highways will be able to improve safety while handling more traffic. The Iowa DOT developed the I-80 Vision to accommodate this coming mobility transformation.

**Vision for Infrastructure Investment**

**Automated Corridors**

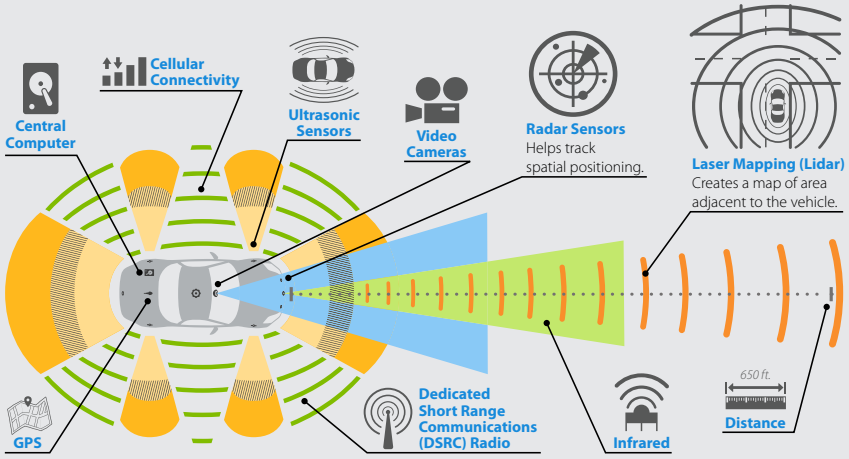
## Iowa DOT Smart Corridor Goals

Create an environment where automated driving and advanced transportation technologies can thrive in Iowa:

- Build new capabilities that will assist people to drive more effectively and move freight more efficiently than today.
- Facilitate highly automated driving as it becomes available.
- Make Iowa a leader in offering an AV-ready driving environment.

## How Automated Vehicle (AV) Technologies Work

AVs rely heavily on technologies to perform the human driving functions – the eyes, ears, hands, feet, and senses of a driver. These technologies monitor the driving environment for obstacles, anticipate and quickly react to potential conflicts, and control vehicle navigation without distractions. To create a greater awareness of its surroundings, AVs use internal sensors, connectivity to the internet, global positioning systems (GPS), and communications with other vehicles and surrounding infrastructure.




## Benefits of the Vision with AV Technologies

Many factors will affect the rate of AV adoption – aging of population, mobility desires of younger generations, the transition of the fleet, and others. We have developed the Vision based on near-term predicted growth with flexibility for these future AV adoption uncertainties. As AVs become more common, the Vision's benefits will increase. Upon high adoption, these new technologies will radically enhance the safety of rural I-80, saving additional lives and further reducing the number of injuries due to crashes. Along with the Vision, AVs will significantly transform the performance of rural I-80.

### 6-Lane I-80 Improvements

(Compared to Existing 4-Lane in 2040)

| without AV | with AV |
|---|---|
| Average **crashes** per mile will **increase** 14% with little change to the number of **fatal** and **major injury crashes** *(with a 72% increase in volumes) | Average **crashes** per mile will **decrease** 59% and **fatal** and **major injury crashes** will **decrease** 50% *(with a 104% increase in volumes) |
| **20%** less **vehicle crowding** and average speeds **remain the same** as today | **35%** less **vehicle crowding** and average speeds **increase** 2% |
| **Travel Reliability** Slight improvement | **Travel Reliability** More improvement |

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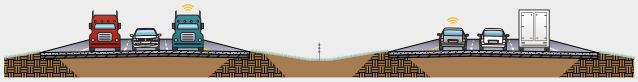
Icons indicate that additional information is available at https://iowadot.gov/interstatestudy

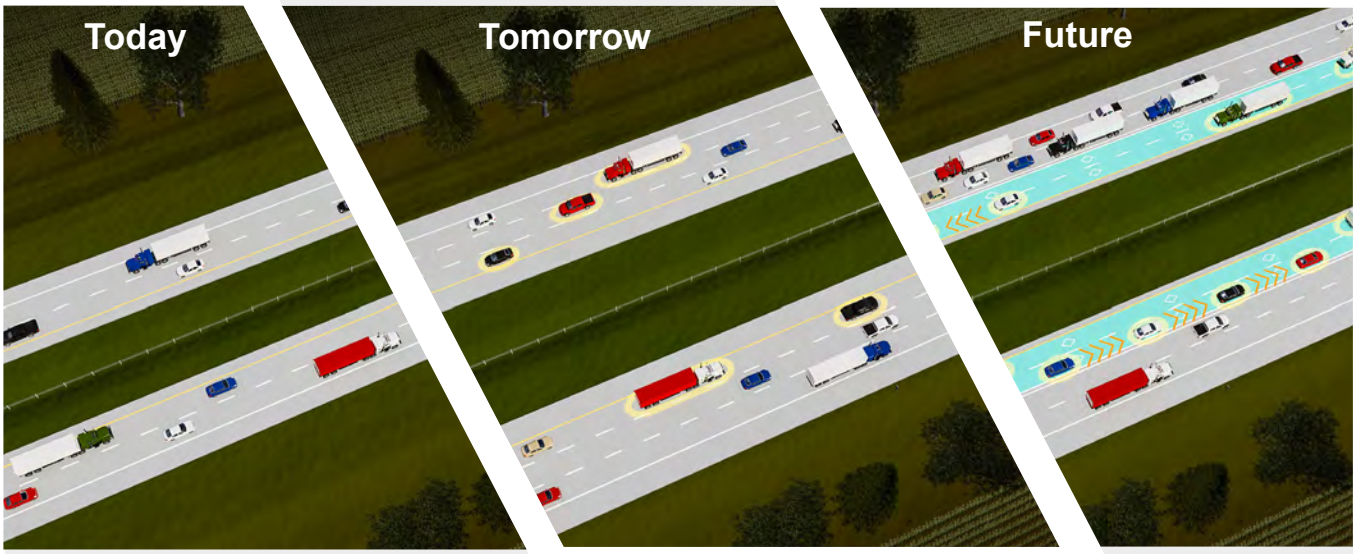
**Technical Reports**

**Project Website**

## NEAR-TERM VISION ROADWAY



3 Westbound General Travel Lanes | 3 Eastbound General Travel Lanes




2 Westbound General Travel Lanes | 2 Eastbound General Travel Lanes

## EXISTING ROADWAY

2 Westbound AV Lanes | 2 Eastbound AV Lanes

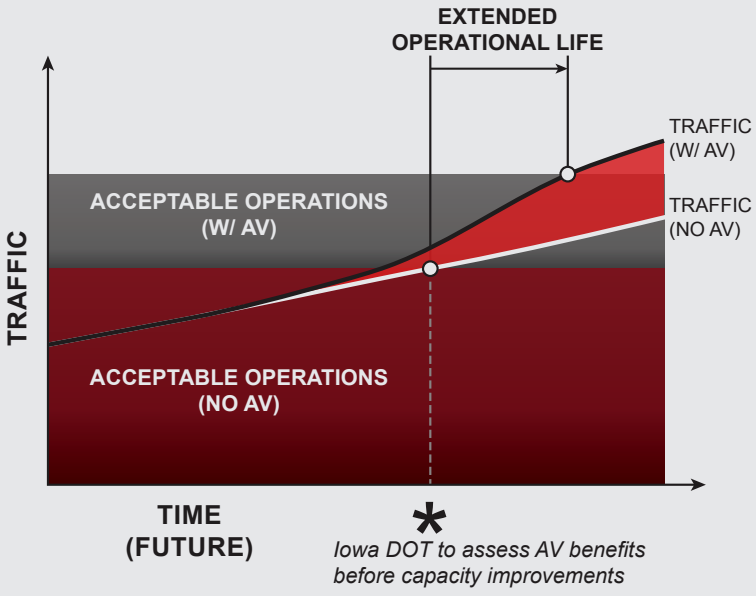
2 Westbound General Travel Lanes | 2 Eastbound General Travel Lanes

## LONG-TERM VISION ROADWAY

# The Vision's Adaptable Design

The Vision will adapt to changing travel and vehicle demands. Flexibility is designed into the Vision for both changing space and timing requirements. In the near-term, the Vision's roadway dimensions will meet the predictable traffic and safety needs of tomorrow. In the future, the roadway section will be adjusted by repurposing available space. Because of technology, travel lanes will be able to safely carry more traffic within less space. Travel lanes can be narrower and inside shoulders will no longer be needed. As a result, the future interstate can accommodate more travel lanes within the same space. The Vision's roadway section design will accommodate these future adaptations.

Similarly, the timing of roadway widening is flexible. As traffic increases with increasing AV adoption, the ability of the roadway to safely carry traffic also increases. Consequently, the operational life of existing travel lanes can be extended, thereby delaying the costs of widening. Optimizing the space and timing of the improvements helps reduce construction costs. As the Vision is implemented, we will continue to assess the benefits of AV operations, ensuring Iowa's mobility needs are met for decades to come.

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